

REPORT No 11401

Date of issue: October 8, 2025

Status: FINAL REPORT

ASTM A923 - Method A

DETECTING DETRIMENTAL INTERMETALLIC PHASES IN DUPLEX (AUSTENITIC / FERRITIC) STAINLESS STEEL

Program: SQ-0092

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Prepared by:	Reviewed by:	Approved by:
Sergio Andrada Assistant Technician	Eng. Alfredo Schmidt Metallurgical expert	Eng. Emiliano Medina Quality Assurance Lead

TABLE OF CONTENTS

1. FOREWORD	3
2. ORGANIZATION	3
3. OBJECTIVE	3
4. PARTICIPANT	3
5. HOMOGENEITY	4
6. SAMPLE INFORMATION	4
7. IMAGES	5
8. ASSIGNED VALUES	6
9. PARTICIPANT RESULTS	6
10. STATISTICS	6
11. EVALUATION OF PERFORMANCE	6
12. CONCLUSIONS	7
 APPENDIX	
PARTICIPANT RESULTS (RESULTS FORM)	8

1. FOREWORD

This report summarizes the results of the **SQ-0092** proficiency testing program on the detection of the presence of intermetallic phases in duplex stainless steels. This program is conducted in a bilateral format, following the A.3.3 classification of the ISO 17043 standard ("Split-sample testing schemes").

South Quality conducted the testing program in September 2025 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator: Eng. Alfredo Schmidt
 Assistant Technician: Sergio Andrada
 Statistic: Lic. Manuel Tozaki
 Supervision: Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determine the etch structure in duplex stainless steels, using the following standard:

Standard
ASTM A923 - 23 - Method A

To verify this, duplex stainless steel samples have been selected.

Participants in this program have not been previously informed about the expected values or value ranges of the samples they receive.

4. PARTICIPANT

Company: **GALPERTI S.R.L.**
 Laboratory: **GALPERTI S.R.L. - QUALITY DEPARTMENT**
 Country: Italy
 Client ID: E471
 Contact person: Matteo Colombo
 QA Director
matteo.colombo@galpertsrl.com

5. HOMOGENEITY

Several batches were prepared identically by the staff at South Quality.

Subsequently, a homogeneity study was conducted with an ISO 17025 accredited laboratory.

The control process followed ISO Guide 35: 2017, clause 7.4.1.2. Stratified random sampling was employed, and samples were chosen using random number generation software.

The results of this test are presented below:

Size of each batch: **50 units**

Tested samples from each batch: **10 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LM3719	BATCH: LM3720	BATCH: LM3721
ETCH STRUCTURE	NO	YES	YES

Size of each batch: **50 units**

Tested samples from each batch: **10 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LM3761	BATCH: LM3762	BATCH: LM3763
ETCH STRUCTURE	YES	YES	NO

Samples for this program are taken from the selected batches identified as **LM3720** and **LM3762**.

For the indicated batches, the values determined in the homogeneity study are utilized as the assigned values.

The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability

6. SAMPLE INFORMATION

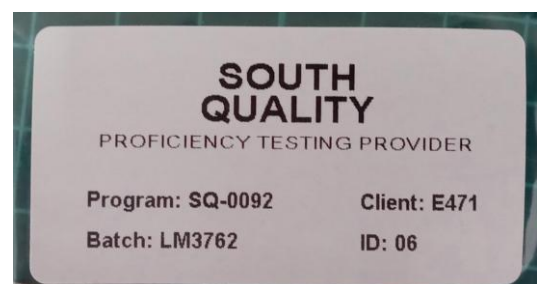
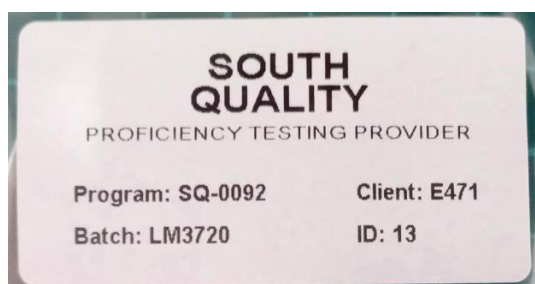
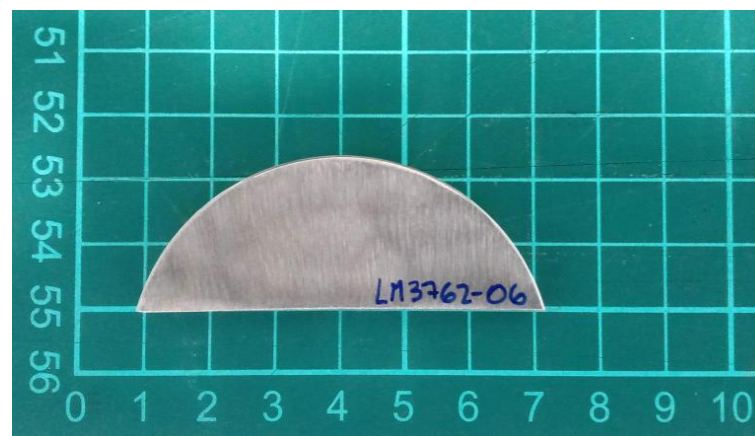
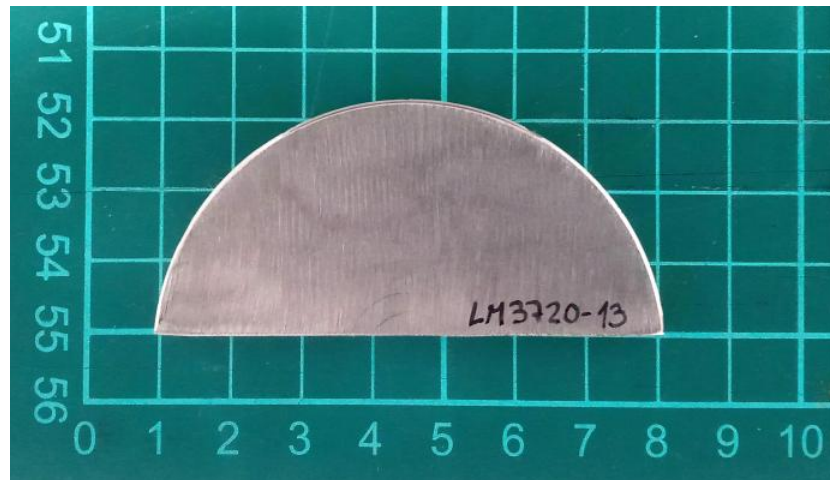
The following samples were sent to be tested:

Batch:	LM3720
Sample ID:	13
Characteristics:	Duplex stainless steel - Ø70 x 5 mm (½ disk)

Batch:	LM3762
Sample ID:	06
Characteristics:	Duplex stainless steel - Ø65 x 5 mm (½ disk)

7. IMAGES

SAMPLES



8. ASSIGNED VALUES

BATCH	ETCH STRUCTURE
LM3720	UNAFFECTED
LM3762	UNAFFECTED

9. PARTICIPANT RESULTS (SEE APPENDIX)

CODE	ETCH STRUCTURE
LM3720-13	UNAFFECTED
LM3762-06	UNAFFECTED

10. STATISTICS

The results must be treated as qualitative.

For qualitative results, the comparison will be made directly against the assigned values, so any difference will be evaluated as **Unsatisfactory**.

11. EVALUATION OF PERFORMANCE

BATCH	ETCH STRUCTURE		PERFORMANCE RESULT
	PARTICIPANT RESULT	ASSIGNED VALUE	
LM3720	UNAFFECTED	UNAFFECTED	SATISFACTORY
LM3762	UNAFFECTED	UNAFFECTED	SATISFACTORY

12. CONCLUSIONS

The overall performance on this **SQ-0092** program from the participant laboratory **GALPERTI S.R.L. - QUALITY DEPARTMENT**, is **SUFFICIENT** based on expected results.

The criteria used for the evaluation of the overall performance is the following:

- **SUFFICIENT** performance: No unsatisfactory results were obtained.
- **INSUFFICIENT** performance: An unsatisfactory result was obtained.

APPENDIX

PARTICIPANT RESULTS

(RESULTS FORM)



INSTRUCTIONS & RESULTS FORM

PROGRAM:	Detecting detrimental intermetallic phases in duplex (Austenitic / Ferritic) stainless steel
CODE:	SQ-0092
VERSION:	-
STANDARD:	ASTM A923
COORDINATOR:	Eng. Alfredo Schmidt (aschmidt@ptsouthquality.com)

1 - General

This document serves as a guide for managing the results of the **SQ-0092** program.

Results must be typed, not handwritten.

2 - Standard

ASTM A923 - 23

3 - Tests involved

TEST
Detection of the presence of intermetallic phases in duplex stainless steels - Method A -

4 - Samples

CODE	SAMPLE	QUANTITY
LM3720-13	Duplex stainless steel - Ø70 x 5 mm (½ disk)	1
LM3762-06	Duplex stainless steel - Ø65 x 5 mm (½ disk)	1

5 - Notes

- Being a bilateral program, there is no deadline for submitting results.
- The tables in this document may be modified by the participant, if desired, to include data or observations.
- Samples must be retained until the end of the program, which concludes with the submission of the final report.
- To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.
- Once this document is completed, it must be converted into a PDF file and sent to the program coordinator.

6 - Test results

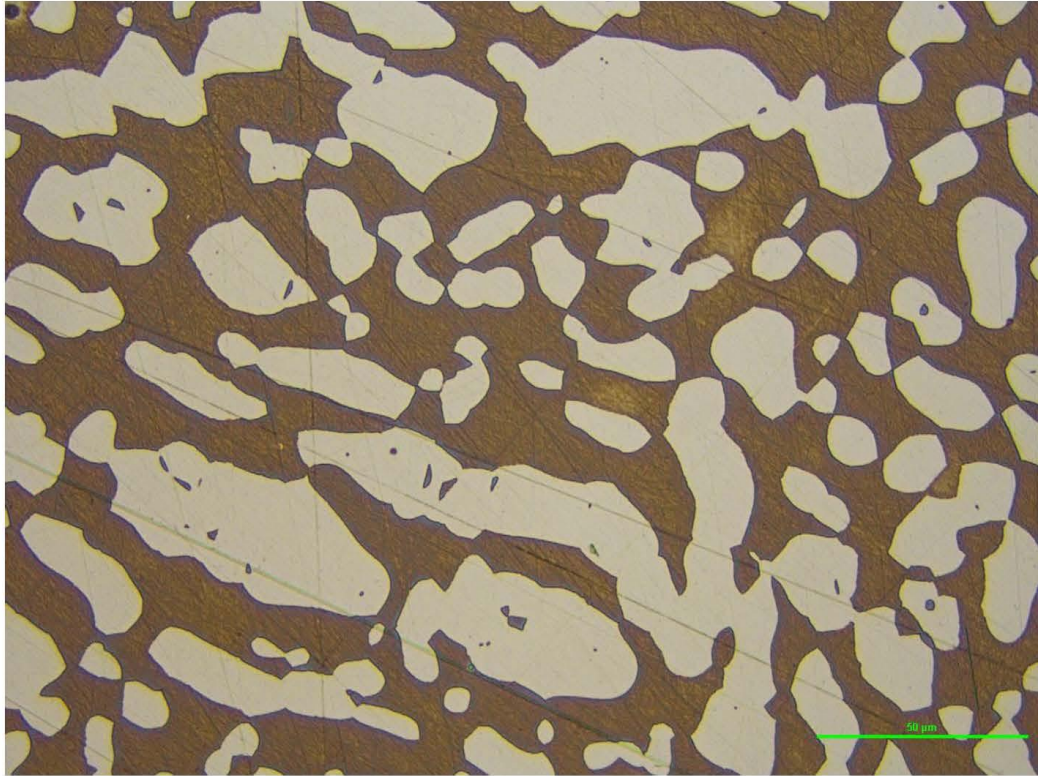
Test date:	05/09/2025
Polishing (finish grade):	1um
Magnification:	500x

CODE	VOLTAGE (V dc)	TIME (s)	ETCH STRUCTURE
LM3720-13	1	5	Unaffected structure
LM3762-06	1	5	Unaffected structure

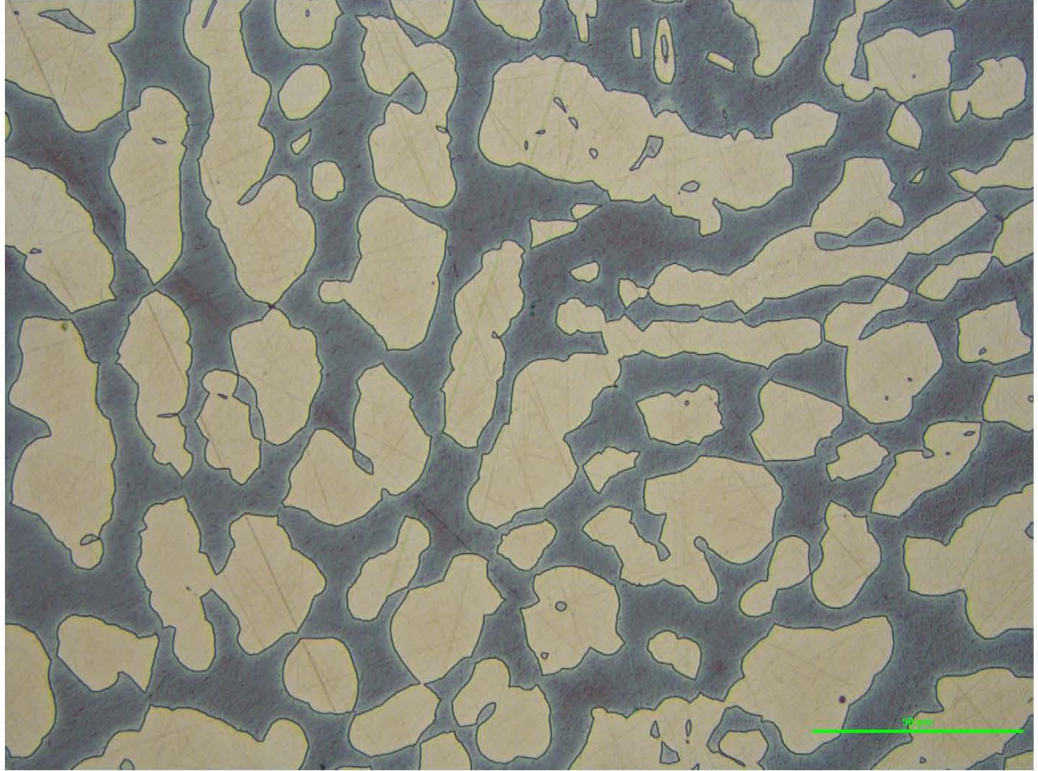
OBSERVATIONS

PHOTOGRAPHS

LM3761



LM3720



DSQ-012 - REV 05 -

SQ-0092

5 of 5

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